

# REPORT OF THE FORTY-NINTH ANNUAL MEETING OF THE OHIO ACADEMY OF SCIENCE

WILLIAM H. ALEXANDER,

*Secretary*

The Forty-ninth Annual Meeting of the Ohio Academy of Science, held on the campus of the University of Cincinnati, Cincinnati, Ohio, on April 14-15, 1939, formed a very appropriate climax to the vigorous, aggressive administration of President Claude E. O'Neal, of Ohio Wesleyan University, Delaware, Ohio. Although the weather was persistently unfavorable throughout the entire meeting, the attendance was good and the enthusiasm notably fine. The committee in charge of the local arrangements, under the untiring, watchful leadership of Prof. J. Hobart Hoskins, apparently anticipated the many needs of the academy and the several sections down to the smallest detail and made ample provision for all. But what else was to be expected of the University of Cincinnati! Few, if any, institutions are better equipped for just such service than said University of Cincinnati! Again, "a thousand thanks, and we are much obliged besides!"

Under the skillful leadership of the President, the business portion of the meeting was limited to one session, held in the auditorium of McMicken Hall, on Friday morning. A fairly complete stenographic report of this meeting was made and is on file with the secretary, but for economic reasons only the chief items of business transacted are given below.

I. The President announced the following committee appointments:

1. *Resolutions*—ARTHUR T. EVANS, Chairman; CLYDE S. ADAMS, RODERICK PEATTIE.
2. *Necrology*—A. E. WALLER, Chairman; FRANCIS H. HERRICK.

II. Reports of Officers:

The President made a brief oral report; the Secretary and Treasurer made written reports.

III. Reports of Committees:

Under this heading written reports were submitted by the Executive Committee, the Board of Trustees, the Joint Administrative Board, Ohio Journal of Science, the Library Committee, the Committee on Co-operation with the State Department of Education, the Committee on Conservation,

the Committee on the Revision of the Constitution and By-Laws, Necrology, and Resolutions, all of which are printed elsewhere in the proceedings.

IV. *At the Banquet:*

Departing slightly from custom, the Committee on the Election of Fellows and the Nominating Committee made their reports at the conclusion of the Friday evening banquet. (Printed elsewhere.) Also voted unanimously in favor of the report of the Committee on Revision of the Constitution and By-Laws. That the report of the Nominating Committee be approved and the persons mentioned therein be declared elected.

V. *Other Motions Passed:*

1. To approve the recommendations made by the Committee on Conservation. (See report of the committee published elsewhere.)
2. To postpone action on the revised constitution from the morning business session to the evening session.
3. To approve the report of the Committee on Co-operation with the State Department of Education, and to continue the committee for another year.
4. That the Secretary, Wm. H. Alexander, be the Academy representative on the Council of the American Association for the Advancement of Science and at the Academy Conference for the 1939 meeting of these organizations at Columbus, Ohio.
5. That the vice-presidents of 1939 constitute the Nominating Committee for 1940.

VI. *Membership Campaign Approved:* "One Thousand Members by 1940."

In presenting the report of the Membership Committee, Dr. C. W. Jarvis, its chairman, spoke as follows regarding the Membership Committee and its plans for an intensive drive for new members during the ensuing year:

"All of the committee have a very definite feeling that if the program of the committee is extended and broadened, we shall have no difficulty in securing one thousand members by 1940. The members of the committee have the feeling also that the activities of the Academy might well be extended and intensified along certain lines. When a man signs a membership card, he feels very definitely that he should know where his \$2.50 is to go and what he is to receive for it. Most of us know that \$1.50 goes to pay for the *Journal*, and many scientists feel that the *Journal* should be broadened. Most sciences have other technical avenues for education; the physics people, for example, have their journals; the chemists and the mathematicians have their publications. Many lovers

of science feel that a good deal of important information regarding science, state news items, abstracts, etc., should be included in the *Ohio Journal of Science*. We hope, therefore, that those who have control of the *Journal* will widen its influence and usefulness, that it may be used as a 'talking point' in selling the Academy to prospects. We, the committee, feel very strongly that there should be some kind of junior academy of science clubs, some suitable publication for juniors in science, or at least some form of affiliation with the Ohio Academy of Science of Junior Academy Clubs. We believe something of this kind would make the Academy important to educators in high schools."

VII. *A New or Revised Constitution and By-Laws* was unanimously approved as indicated above.

VIII. *Resolutions*: See report of the Committee on Resolutions printed elsewhere in these proceedings.

Immediately following the business session on Friday morning occurred the only *General Scientific Meeting* at which three very interesting and highly informing addresses were given, namely: (1) A moving picture film was shown in connection with an address on "Hawaii, a Land of Unique Geology," by Dr. Paris B. Stockdale, of Ohio State University; (2) "Prediction of Floods in the Ohio River," by Professor Edwin L. Moseley, State Normal College; and (3) "A Naturalist's Diary," illustrated in color film, by Mr. Karl Maslowski, of the Cincinnati Museum of Natural History.

Dr. Jarvis called attention to the personnel of the committee and stated the plan of procedure in general would be for the representative of each section on the committee to appoint local representatives in the various colleges and universities over the State, possibly including many of the high schools. He closed with a plea for suggestions and hearty co-operation on the part of all members of the Academy.

On Saturday morning, under the leadership of Dr. Paul B. Sears, of Oberlin College, the University of Cincinnati sponsored a Junior Academy demonstration program entitled "*The Farm Comes to Town*." It is unfortunate that a larger number of the members of the Academy and others did not hear this decidedly unique presentation of farm conservation problems.

*The Annual Dinner* on Friday evening, followed by a short business session, was as usual the high spot of the meeting. Dr. J. Hobart Hoskins, chairman of the local committee on arrangements, acted in a most tactful way as toastmaster for

the occasion. He first introduced the President of the University of Cincinnati, Dr. Raymond Walters, who in very gracious and well-chosen words extended a most cordial welcome to the Academy and its guests; then Dr. Robert C. Gowdy welcomed the Academy in the name of the Society of Sigma Xi; then came the Presidential Address on "Taking Inventory," by President Claude E. O'Neal; Dean George F. Arps, Ohio State University, was then introduced as the *Director for the Semi-Centennial* and laid before the Academy his aims, hopes and plans for a great semi-centennial in 1940, and earnestly solicited the full co-operation of every member of the Academy in efforts to make it a worth-while celebration; on behalf of the many local societies in Cincinnati and vicinity Dr. Nevin M. Fenneman spoke words of cordial greeting. To all these words of welcome and good will, President O'Neal responded in appropriate manner.

President O'Neal then assumed the chair and a short business meeting was held at which three items of business as indicated elsewhere were transacted and the meeting adjourned.

### *Report of the Secretary*

CINCINNATI, OHIO, April 14, 1939.

#### *To the Ohio Academy of Science:*

This is our fifteenth annual report and will be about the shortest! Office routine does not require nor does it lend itself to interesting or important statement. We have had by far the largest amount of detail to look after the past year than in any of the preceding 15 years because, to be sure, we have really had more work to do, owing to the growth of the Academy and the approaching semi-centennial. Furthermore, the Secretary has been teamed-up with one of the workingest Presidents we have ever had! Properly, one's work should and in fact does speak for itself!

The constitutional duties imposed upon the office of secretary and all requests made upon the office by members and others have been taken care of promptly and, we believe, with reasonable efficiency. Fortunately, we have had ample time for the duties of the office and the fine co-operation of the entire official family has made the work very delightful. We wish here and now to record our most hearty thanks for the generous support received from every officer and member, from the President down.

Among the items over and above the purely routine may be mentioned:

1. Represented the Academy at the Richmond, Va., meeting of the A. A. A. S. and at the Academy Conference;

2. Revision and printing of the leaflet entitled "The Ohio Academy of Science," assisted by the Treasurer;

3. Revision and printing of several forms, such as the Notice of election to office, committee and membership; to Fellowship, etc.

4. Assisted in the campaign for new members—"One Thousand Members by 1940!"

5. We have fostered and encouraged as far as possible the junior academy idea and we wish to put on record here and now our firm opinion that the Ohio Academy of Science is face to face with the junior academy problem which will not "down" until properly solved. If we do not actually assist in the formation of the junior clubs we must provide some form of *affiliation*.

6. In a limited way we have encouraged legislation favorable to conservation of our natural resources, the establishment of public parks, etc.

In short, we have tried to be useful in as many ways as possible.

Respectfully submitted,

WILLIAM H. ALEXANDER,  
*Secretary.*

### *Report of the Treasurer*

#### *To the Ohio Academy of Science:*

Statement of Income and Expenses for the year ended December 31, 1938.

Cash on hand January 1, 1938.....\$ 191.96

#### CASH RECEIPTS:

##### Membership Dues—

1935.....	\$ 5.00
1936.....	30.00
1937.....	145.00
1938.....	1,081.18
1939.....	17.50

Total received from membership dues.....	\$1,278.68
Grants for Research from A. A. A. S.....	150.00
Interest on Bonds.....	39.00
Sale of Publications.....	56.86
Dinner Receipts.....	17.75
Miscellaneous Receipts.....	.52

Total Cash Receipts for the Year.....1,542.81

Total Cash to be Accounted for.....\$1,734.77

#### CASH DISBURSEMENTS:

Speakers.....	\$ 25.00
Clerical Assistance.....	20.40
Postage and Telegraph.....	58.00
Office Supplies.....	39.04
Expense of Officers to Meetings.....	84.69

## Printing:

Proceedings in Ohio Journal of Science, 1937.....	\$191.59
Proceedings in Ohio Journal of Science, 1938.....	132.26
Other Printing Expense.....	70.75

Total Printing Expense..... 394.60

## Subscriptions:

Ohio Journal of Science, 1937.....	\$ 97.50
Ohio Journal of Science, 1938.....	555.00

Total Subscriptions..... 652.50

Research Grants.....	250.00
Secretary's Honorarium.....	100.00
Safety Deposit Box Rent.....	3.30
Reporting 1938 Meeting.....	8.60
Bond for Treasurer.....	5.00
Auditing Expense.....	15.00
Bank Charges.....	3.18

Total Cash Disbursements for the Year..... 1,659.31

Cash on hand December 31, 1938.....\$ 75.46

\$1,734.77

Respectfully submitted,

EUGENE VAN CLEEF,  
*Treasurer.*

*Report of the Auditor*

COLUMBUS, OHIO, February 23, 1939.

*To the Ohio Academy of Science:*

Pursuant to your instructions, I have audited the accounts and records of the Treasurer of the Ohio Academy of Science for the year ended December 31, 1938. These records and accounts were found to be accurately and honestly kept, and to be adequate for the purpose of controlling the financial operations, and furnishing the necessary information concerning the financial transactions of the association.

All cash receipts and disbursements for the period under review were carefully checked. The cash in bank current fund was verified by confirmation by the bank and reconciliation with the book balance. Cash in the special research fund was not verified by bank confirmation.

Members accounts receivable were certified to your auditor by the treasurer of your association.

Investment securities in the current fund were examined and found to be as stated in the records. Securities of the special research fund were not verified by examination.

I hereby certify that in my opinion the accompanying Balance Sheet sets forth fairly the financial condition of the Ohio Academy of Science as at December 31, 1938, and that the Statement of Operating Results correctly summarizes the transactions for the fiscal year ended December 31, 1938, and the changes in net worth resulting therefrom.

Very truly yours,

D. M. SHONTING,  
*Public Accountant.*

*Report of the Trustees of the Research Fund**To the Ohio Academy of Science:*

The Trustees beg of you to report for the year 1938 the following statement of financial condition:

## SUMMARY OF RECEIPTS

Balance in Checking Account December 31, 1937.....	\$ 247.27
Received.....	73.00
Total.....	\$ 320.27

## DISBURSEMENTS

Service Charge at Bank.....	\$ .75
Balance Checking Account December 31, 1938.....	\$ 319.52

## ASSETS, DECEMBER 31, 1938

Bonds (at cost).....	\$1,300.00
Banc Ohio Stock (at cost).....	437.50
Balance Checking Account, Ohio National Bank.....	319.52
Total.....	\$2,057.02

No grant from this fund was made during the year, but the allowance from the A. A. A. S. of \$150.00 was assigned: \$100.00 to Geo. D. Hubbard, Oberlin, Ohio, for investigations on Preglacial Lake Beds in Ohio, and \$50.00 to Frank Verhoek, O. S. U., for special apparatus in research work.

Also we may state that since January 1, 1939, a grant from the A. A. A. S. of \$150.00 has been allotted to Dr. E. Lucy Braun for investigations on the major associations of the deciduous forest formation of eastern United States, and from the Academy Research fund the trustees have approved a grant of \$100.00 to Dr. G. D. Hubbard for a continuation of his studies on preglacial lake beds in Ohio. We have also other applications pending and will probably allot a considerable portion of the available balance. However, further applications will be welcome.

There is no doubt that many worthy projects could be encouraged by modest grants and it is hoped that additional research funds may become available. We would urge an effort to secure such additions by additional life memberships or donations.

In connection with the 50th anniversary in the coming year it would seem appropriate to give a historical sketch of the McMillin fund with indication of the amounts allotted for the various research projects which were assisted by grants from this fund and the subsequent additions to the Academy Research funds. The data for such a sketch is largely in hand and it would seem possible to make a fairly distinctive report that would be of interest to the Academy.

A preliminary review of the records shows that grants of near \$6,000.00 have been made to some 50 individuals to assist over sixty different projects.

Respectfully submitted,

HERBERT OSBORN, *Chairman*,  
WM. LLOYD EVANS,  
JAMES P. PORTER,

*Trustees.*

*Report of the Executive Committee**By the Secretary*

CINCINNATI, OHIO, April 14, 1939.

*To the Ohio Academy of Science:*

Your Executive Committee has held five meetings during the year with all members present at three of the meetings, all but one present at one meeting and two absent at one meeting—probably a record for committee meetings! Certainly an indication of the aggressive, energetic administration put on by our active, ambitious President!

The major items of business above mere routine in importance transacted at these meetings may be mentioned the following:

1. The approval of 57 applications for membership, all of which have been passed on to the Membership Committee for inspection and recommendation.
2. The Treasurer was authorized to drop all members of the Academy who are more than two years in arrears with their dues, after final notice.
3. The appointment of a Director, Dean George F. Arps, as Director of the semi-centennial and the appointment of the ten committees provided for in the preliminary plans of the celebration.
4. The selection of the place and the fixing of the date of the annual meeting for 1939.
5. Considered in detail the preliminary report of the Committee on the Revision of the Constitution and By-Laws.
6. Considered a preliminary report by the committee appointed to co-operate with the State Director of Education relative to the proper training of teachers of science in the junior and senior high schools of the State.
7. The Treasurer was authorized and requested to confer with Joint Administrative Board and see what, if anything, could be done toward a readjustment of the financial arrangements now existing between the Academy and the Board, and failing this to confer with the Ohio State University authorities in the hope of securing an increased allowance from that institution.
8. The tentative date of May 9, 10 and 11, 1940, was fixed for the Semi-Centennial.
9. Approval was given to an intensive membership campaign and the slogan suggested by the Secretary, "One Thousand Members by 1940," was adopted.
10. Unanimously approved the recommendations of the Committee on Conservation.



*Report of Membership Committee*

CINCINNATI, OHIO, April 14, 1939.

*To the Ohio Academy of Science:*

The following applications for membership in the Academy, accompanied by one year's dues, have been received during the year, approved by the Executive or Membership Committee, or both, and are now recommended for final approval by the Academy, viz.:

AVERY, WILLIS F. (F), The B. F. Goodrich Co., Akron.  
 BERGER, BENJAMIN, (D), 133 W. Ninth Ave., Columbus.  
 BILLS, ARTHUR G., (E), 3423 Whitfield Ave., Cincinnati.  
 BRAND, LOUIS, (I), 2603 University Court, Cincinnati.  
 BRIEF, B. J., (D), 769 Kimball Place, Columbus.  
 BUNCH, ROSELLA, (C), 186 W. College St., Oberlin.  
 BURGESS, WAYLAND M., (H), University of Cincinnati, Cincinnati.  
 CHANDLER, DAVID C., (A), Stone Laboratory, Put-in-Bay.  
 CHILDRESS, NORMAN F. (B and H), Ohio State University, Columbus.  
 CLARK, PAUL ENOCH, (H, I and F), New Concord.  
 COGHILL, G. E., (A), R. F. D. No. 2, Box 77A, Gainesville, Fla.  
 COLE, LAWRENCE E., (E), 111 S. Cedar, Oberlin.  
 COLES, VICTOR, (A and B), 2910 Grasselli Ave., Cincinnati.  
 CONSOLATA, SISTER MARY, (H), 2234 Overlook Road, Cleveland.  
 COTTERMAN, CHAS. W., (A), B. & Z. Bldg., O. S. U., Columbus.  
 CUNNINGHAM, JOHN F., (A and B), Townshend Hall, O. S. U., Columbus.  
 DAMBACH, CHARLES A., (A and B), 1902 Auburn Ave., Dayton.  
 DEAROFF, KENNETH, (B), Public Library Museum, Dayton.  
 DOAN, KENNETH H., (A), Stone Laboratory, Put-in-Bay.  
 DUNLAP, H. L., (H), 275 E. State St., Athens.  
 FIDDLER, MRS. CLARICE McADOW, (A and B), Hotel Hester, Manchester.  
 FIELDS, PAUL E., (E), 138 N. Sandusky St., Delaware.  
 FRONIUS, ARTHUR GEORGE, (H, F and E), 785 New Garden Ave., Salem.  
 GARRETT, ALFRED B., (H), 205 W. Henderson Rd., Columbus.  
 GIBBONS, CHARLES C., (E), 115 Sixteenth Ave., Columbus.  
 GIER, HERSCHEL T., (A), Ohio University, Athens.  
 GOLDBERG, LAWRENCE, (D), 38 W. Washington, Athens.  
 HANSEN, HUGH GROVES, (G), 76 E. College St., Oberlin.  
 HODGMAN, CHARLES D., (F), Case School of Applied Science, Cleveland.  
 HODGMAN, MARGARET E., (B), 2119 Marlindale Rd., Cleveland Heights.  
 HOUSEHOLDER, FRED F., (F), 1209 Berwin St., Akron.  
 HUGHES, JOHN H., (A), 81 South St., Jackson.  
 IRELAND, HUBERT ANDREW, (C), Soil Conservation Service, 447 N. Broadway, New Philadelphia.  
 KELLY, HENRY A., (C, A, H and F), 316 W. Washington St., Howell, Mich.  
 KNAUSS, HAROLD P., (F), Mendenhall Laboratory, O. S. U., Columbus.  
 LANDE, ALFRED, (F), Mendenhall Laboratory, O. S. U., Columbus.  
 LEWIS, ROBERT DONALD, (B), Department of Agronomy, O. S. U., Columbus.  
 MARTIN, GEORGE C., JR., (C), 46 W. Tenth Ave., Columbus.  
 MOLZ, FRANCIS J., (A and B), University of Dayton, Dayton.  
 MOULTHROP, PHILIP N., (A), 2717 Euclid Ave., Cleveland.  
 NELSON, R. H., (A), 151 W. Eleventh Ave., Columbus.  
 NOVY, WILLIAM S., (A), 41½ W. Washington, Athens.  
 OSGOOD, THOMAS H., (F), University of Toledo, Toledo.  
 POPHAM, RICHARD A., (B), Botany Department, O. S. U., Columbus.  
 POOL, M. L., (F), Ohio State University, Columbus.  
 PORTER, LAWRENCE HAROLD, (B), B. & Z. Bldg., O. S. U., Columbus.  
 PORTER, T. WAYNE, (A), 327 W. Water St., Oak Harbor.  
 PRATHER, W. D., (H and A), 408 Broadway, Aurora, Ind.  
 PYLE, W. R., (F), 240 Fife St., Wilmington.  
 QUIRING, DANIEL P., (A and B), Western Reserve University, Cleveland.

REYNOLDS, RALPH J., (B and A), 2645 Powell Ave., Columbus.  
 RICH, JOHN L., (C), University of Cincinnati, Cincinnati.  
 RING, GORDON C., (D), Hamilton Hall, O. S. U., Columbus.  
 ROCKWOOD, RUTH C., (G), R. F. D. No. 1, La Grange.  
 SHANKLAND, ROBERT S., (F), Case School of Applied Science, Cleveland.  
 SHARPE, C. F. STEWART, (C and G), 337 Ashwood Lane, N. W., New Philadelphia.  
 SIEKERES, ALBERT, (A and F), Kipton, Ohio.  
 SMITH, RUTH ELIZABETH, (C), 109 Lakeside, New Concord.  
 SNODDY, A. O., (H), R. F. D. No. 6, Cincinnati.  
 SPERTI, GEORGE SPERI, (Scientific Research and Education), 6616 Beechmont Ave., Cincinnati.  
 STOLTZ, ROBERT B., (Dairy Mfg.), 1971 Concord Rd., Columbus.  
 STUMM, ERWIN O., (C), Oberlin.  
 SUMNER, CHARLES B., (A, B and D), Kent State University, Kent.  
 THORNTON, C. S., (A and B), Kenyon College, Gambier.  
 UNNEWEHR, E. C., (F), 109 Seminary St., Berea.  
 VAUGHN, JAMES, (E), 413 McAlpin, Cincinnati.  
 VON DACH, HERMAN, (A), B. & Z. Bldg., O. S. U., Columbus.  
 WILLIAMSON, C. O., (I), College of Wooster, Wooster.

Respectfully submitted,

C. W. JARVIS,  
*Chairman.*

*Report of the Joint Administrative Board  
 of the Ohio Journal of Science*

CINCINNATI, OHIO, April 14, 1939.

*To the Ohio Academy of Science:*

The only meeting of the Joint Administrative Board of the Ohio Journal of Science since the last report was held at the Ohio State University, April 1, 1939. Present were all members of the board, the editor and the business manager. The meeting was called to order by Chairman Rice at about 1:00 P. M. The minutes of the preceding meeting were read and approved.

Upon motion, the terms of all present officers were continued for the year 1939.

Motion carried that the Journal carry an article dealing with the services of the late Prof. J. H. Schaffner as past editor of the Journal. Motion carried that the Joint Administrative Board recommend to the Ohio Academy of Science that the proceedings of the 50th anniversary meeting of the Ohio Academy of Science, whatever its format, be issued as part of the regular publication series of the Ohio Journal of Science. It was agreed that the recommendation would not be formally presented to the Academy without the prior approval of Dean Arps. Dr. Transeau agreed to discuss this matter with Dean Arps.

The business manager of the Journal tendered his formal resignation of this position, to be effective at the end of the present fiscal year.

The business manager presented his financial report for the fiscal year 1938 as follows:

## RECEIPTS

Balance from 1937.....	\$ 437.20
From Ohio State University.....	750.00
Ohio Academy of Science—Dues.....	640.50
Ohio Academy of Science—Publication of Proceedings.....	132.26
Subscriptions.....	74.94
Author's Payments for Plates.....	92.46
Sale of Back Numbers.....	38.50
	<hr/>
	\$2,165.86

## EXPENDITURES

Spahr and Glenn Co., Printing Vol. 37, No. 6.....	\$ 497.17
Spahr and Glenn Co., Printing Vol. 38.....	1,331.71
Postmaster, Columbus, Ohio.....	108.00
Bucher Engraving Co.....	201.14
Clerical Assistance.....	6.50
	<hr/>
	\$2,144.52
Balance on Hand, January 27, 1939.....	21.34
(Huntington National Bank)	
	<hr/>
	\$2,165.86

As of this date one bill to the Bucher Engraving Co., in the amount of \$39.56, was unpaid. All other 1938 bills are paid.

Upon motion this report was accepted and placed on file, Dr. Transeau being appointed a committee of one to audit the business manager's report.

The meeting adjourned at about 2:00 P. M.

Respectfully submitted,

B. S. MEYER,

*Secretary of the Board.*

*Report of the Library Committee*

COLUMBUS, OHIO, April 11, 1939.

*To the Ohio Academy of Science:*

Much of the routine work of the chairman of this committee has consisted in taking care of the mailing list and in supplying numbers of the Ohio Journal of Science when requested.

Late in the year the exchanges were checked in the Ohio State University Library and only a few were found to be inactive. Some of them sent their publications in response to letters which were written to them and the others were dropped from the mailing list. Five new exchanges were added, making a total of 361, of which 97 are in this country and 264 in foreign countries. As some of them send more than one publication we are now receiving nearly 560 different titles. A few publications also come as gifts. A complete list of the exchanges was typed onto sheets and distributed to the members of the library committee and to several others.

The sales of publications amounted to \$25.15. The largest single order was for fourteen copies of Dr. W. G. Stover's *Agaricaceae* of Ohio and was placed by the Botany Department of Ohio University.

Thirty-seven copies of ten Special Papers were sold in eighteen sales. Only two sales were made to persons living outside of our own State. The sum of \$57.38 has been given to the Treasurer. This included \$32.25 which was withdrawn from the building and loan company when the account of the Academy was closed at the beginning of the year. This fact was mentioned in last year's report, but it is stated again this year as it appears in the financial report which is appended to this report but not included in it. A copy is on file for the purpose of record in the office of the Treasurer and also in the library of the chairman of this committee.

Respectfully submitted,

ETHEL MELSHEIMER MILLER,  
*Chairman.*

*Report of Committee to Co-operate with Ohio Department  
of Education*

CINCINNATI, OHIO, April 14, 1939.

*To the Ohio Academy of Science:*

The Committee appointed by the President pursuant to a resolution passed by the Ohio Academy of Science at the annual meeting one year ago to co-operate with the Ohio Department of Education in outlining the proper requirements in preparing teachers of science for the Ohio junior and senior high schools, submits the following and recommends its approval by the Academy, viz.:

1. All applicants for certification as teachers of science in the junior and senior high schools under the laws of Ohio shall be required to present as a *minimum preparation* 40 semester hours in science, consisting of 24 semester hours distributed as follows: 6 semester hours in Botany, 6 semester hours in Zoology, 6 semester hours in Chemistry, 6 semester hours in Physics, or their equivalent as defined by the several institutions of higher education in Ohio, and 16 further hours elected from the above subjects, or from Astronomy and Geology.

2. (a) A student seeking the Master's degree in order to qualify under the proposed Ohio requirements may complete these degree requirements in the field of science rather than in a specific department;
- (b) Or in Physical Science and Biological Science.
- (c) Or a major in Physical Science and a minor in Biological Science, or vice versa;
- (d) Or a major in a department.

Respectfully,

C. G. SHATZER, *Chairman*,  
W. A. MANUEL,  
H. C. SAMPSON,  
A. W. LINDSEY.

Recommendation unanimously approved by the Academy, April 14, 1939.—W. H. ALEXANDER, *Secretary*.

*Report of the Committee on Conservation*

CINCINNATI, OHIO, April 13, 1939.

*To the Ohio Academy of Science:*

Your Committee on Conservation begs to submit the following report of conservation activities in Ohio during the past year.

*Division of Conservation*—An important milestone in the annals of Ohio conservation was passed, it is believed, when the Ohio legislature enacted Senate Bill No. 165, which is designed to remove conservation matters from politics. Briefly, the bill provides that the Commissioner of Conservation and not more than two Assistant Commissioners be appointed by the Conservation Commission, instead of by the Director of Agriculture, as heretofore; and the terms of the members of the Commission are increased to eight years, in order to lessen the likelihood of any given political administration gaining control over the Commission. The name of the division is made to include natural resources: the Division of Conservation and Natural Resources. The Commission controls matters of policy and program and the Commissioner has charge of personnel.

A brief review of the history of official conservation activity has been provided by Mr. E. L. Wickliff:

In 1873 the Ohio legislature passed a bill providing for the appointment of three Fish Commissioners. The commissioners were appointed in 1875, marking the beginning of our present Division of Conservation and Natural Resources. It will be noted that the Fish Commission devoted all its activities to fish and that game was not at this early stage of development deemed to require attention. Among other duties of the Fish Commission were: "To examine the various rivers, lakes, ponds and streams of the state of Ohio—with a view of ascertaining where they can be rendered more productive of fish and what measures are desirable to effect this object, either in restoring the production of fish in them or in protecting or propagating the fish that at present frequent them . . ." It will thus be seen that the duties of the Fish Commissioners were much the same as they are today and that even in those days they talked about depletion and the restoration of the depleted fish supply, just as we do today.

In 1886 the legislature provided for a Fish and Game Commission of five members, adding the protection of game to their duties. In 1913, the Division of Fish and Game was placed under the State Department of Agriculture. In 1923, an Advisory Board was appointed. In 1929 the legislature changed the name of the Division of Fish and Game to the Division of Conservation.

*Soil Conservation*—In Ohio at the present time there are 5 Erosion Control Demonstration projects and 11 CCC camp work areas. The project areas which cover rather intensively all or a part of the drainage basin or watershed of a stream are located near Wooster, Mt. Vernon, Zanesville, Hamilton, and Cambridge. The work areas of these five projects touch 10 counties.

Each CCC camp work area usually includes a number of farms in one county, and usually extends to one tier of townships in the adjoining counties. The present camps are located near Bellefontaine, Eaton, Lebanon, Wilmington, Peebles, Chillicothe, Lancaster, Mt. Vernon, Carrollton, Shreve and Zanesville.

The number of farms for which complete conservation plans have been developed total approximately 2,700. This is about 1 percent of the farms of the state and  $1\frac{1}{2}$  percent of the land in farms. These demonstrations are distributed in about 60 of the 88 counties. The following table shows the change in land use on 331,311 operating under a co-operative agreement with the Soil Conservation Service.

	Before Planning %	After Planning %
Crop Land.....	54.5	43.2
Permanent Pasture.....	29.0	30.0
Permanent Hay.....	0.9	5.4
Woodland.....	4.1	15.4
Miscellaneous.....	11.5	6.0

On these farms on 147,446 acres of crop land the percentage distribution of erosion control practices is as follows:

Contour Tilled.....	52.2 percent
Strip Cropped.....	26.1 "
Terraced.....	2.2 "
Combination of Terracing and Strip Cropping.....	0.5 "

It is very evident that contour tillage and strip cropping are the most common erosion control practices in Ohio.

*Sealing of Abandoned Mines*—Report from Mr. F. H. Waring, Chief of the Division of Engineering of the Ohio Department of Health for 1938, covers the accomplishment for that year and for the last five years. Abandoned mines have been sealed in 25 counties along the Ohio River from Mahoning on the north to Scioto on the south and as far inland as Coshocton County. Funds for this work have been provided by the Federal Government through CWA, ERA, and WPA.

As of December 31, 1938, a total expenditure of \$1,929,337.02 of federal funds had been made for this work, and the following accomplished in the five-year period: Openings closed, 57,426; water samples collected, 12,446; labor costs, \$1,769,798.11; material costs, \$53,218.05; supervisory cost, \$106,320.86; cost per opening closed, \$33.60; counties worked, 25; mines sealed, 3,468; per cent acid reduction 64.7 (based on a study of 1,301 mines to July 1, 1938); average acid per mine in tons per year, 58.7 (based on a study of 1,671 mines to July 1, 1938); average cost per mine, \$518; average number of openings per mine, 14.6; and cost per ton acid, \$8.86. Of the total cost, 91.8 per cent was expended for labor, 2.7 for materials, and 5.5 for supervision.

During the year 1938, a federal expenditure of \$904,782.76 was made in sealing 29,895 mine openings in 2,043 mines in 25 counties, with a labor cost of 94.8 per cent, materials 2.9 per cent, and supervision 2.3 per cent. The average cost of sealing openings was \$30.27.

The original acid contained in the drainage from 1,301 mines studied was 74,495.47 tons per year; at the last sampling, in the second quarter of 1938, it had been reduced to 26,288.42 tons per year. The average cost of sealing each of these mines was \$469.84. On July 1, 1938, records on 1,671 sealed mines showed they contained 24,446 openings (an average of 14.6 each), the original acid content of the drainage was 98,010.90 tons per year, and the average acidity was 58.7 tons per year.

Employment during 1938 varied from 1,849 men in May to 995 in December. All abandoned mines were sealed in 15 counties where permission could be obtained from the surface owners and the mining-rights owners to do so. This included by far the greater part of the abandoned mines in these counties. Active work is still being carried on in 10 counties.

On July 1, 1938, the supervisory staff of 14 persons employed by the U. S. Public Health Service and paid with WPA funds was discontinued and since that date only one part-time engineer from the State Health Department has given supervision to the project.

A new project was submitted to the Federal Government for approval in the latter part of 1938 for a total expenditure of \$484,160, of which \$448,592 represented federal funds. This project was to cover 15,150 mine openings, with the greater part of the work to be done in counties in which work has not been completed.

However, it is contemplated that considerable maintenance work will be necessary in the other counties in order to repair the seals of openings already closed, and to close any openings which have developed since the sealing was done.

The Department of Health provided exhibits of this work at Cincinnati Sportsmen's Show and the Toledo Sportsmen's Show. Likewise, considerable publicity has been given to the benefits of mine sealing projects through use of the public press. The work is in charge of Engineer B. F. Hatch, of the Department.

*Department of Forestry*—For financial reasons the program of the Division of Forestry during the past year has not been greatly expanded.

However, it was possible to place a man on public relations work. Although the appointment was not made until October, the effects of this work are already being appreciated.

Recreational use of the state forests and forest parks continues to increase. This reflects an increased drain on maintenance funds which have not been adequate to meet the situation. During the year just ahead the Division will be expected to employ any help necessary to plan CCC projects and maintain all completed work. Failure to meet this obligation will lead to the loss of some, if not all, of the camps now operating on the state forests.

The area of forests receiving organized forest fire protection remains at 1,000,000 acres with another million acres in need of protection which cannot now be provided.

Three land utilization projects totaling more than 35,000 acres will be turned over to the Division early in 1939. On each project

are extensive recreational developments, the successful operation of which will require additional personnel.

The Division of Forestry has assumed sponsorship for a WPA project having as its threefold objective the survey of farm woods in 21 counties in Ohio, a survey of the forest plantations in the State and the eradication of *Ribes* in those sections of Ohio where white pine is, or may be, of economic importance. This project which is under the direct supervision of trained foresters is expected to yield a great deal of very valuable information.

*Ohio Wildlife Research Station*—Of the 19 projects of the Ohio Wildlife Research Station, two are new and five were completed during the last year. The number of persons engaged in whole or part time work related to wildlife research of the Station during 1938-39, was 24. Twelve reports have been published, 26 mimeographs issued, and 42 manuscript progress reports filed. Present projects involve areas in 72 of the 88 counties of the State.

Pheasant refuge and controlled hunting management techniques developed in Wood County are rapidly being put into operation elsewhere in Ohio and, to a lesser extent, in several other States. A series of reports based on the Wood County studies are now available, which involve critical explorations in the fields of wildlife-agricultural land-use, game economics, game yields in relation to management and land-use, controlled hunting and farmer-sportsmen relationships. As a result of these reports, the exact factors involved in producing sustained annual pheasant crops are probably better known for Wood County than for any other in the United States.

Studies have continued in the development of techniques for conditioning breeding stock of pheasants, raccoon, rabbits and other species to increase their "stocking value." A recent report summarized the record of more than 10,000 surplus naturally produced wild pheasants which were live-trapped on three Wood County refuges. Banding returns and population studies indicate that birds so obtained have a stocking value far superior to that of birds produced on game farms. This research points the way to a day not far distant when game farms with their artificial propagation will be abolished, releasing man-power and money for practical development of natural habitats in accordance with sound ecological land-use principles. The development of techniques for producing in the wild surpluses of superior native brood stocks, will eliminate, for example, the inexcusable importation of western rabbits and the tularemia and Rocky Mountain fever which comes along with them.

A monographic study of the Fox Squirrel nears completion. This includes many critical ecological land-use studies of Ohio woodlots and population data on more than a thousand animals trapped and tagged. Similar studies have been made of 900 live-trapped rabbits. A survey of Ohio squirrel diseases has been completed and is now being prepared for publication. Two other long-time projects concern (a) a statistical and ecological analysis of the raccoon populations of two central Ohio counties, and (b) disease, nutrition, reproduction and conditioning studies of 2,200 captive raccoon at the Milan farms.



A ten-year survey of population fluctuations of the Hungarian Partridge is nearing completion. At Pymatuning Lake more than 1,000 waterfowl have been banded to study the origin and dispersal of a newly created waterfowl population located on the divide between the great Atlantic and Mississippi flyways.

The conservation education program of the Ohio Wildlife Research Station grows each year. During the last twelve months the staff has given 42 lectures and radio talks, held conferences with 251 visitors (many from outside Ohio) on problems of the wildlife profession, given advanced undergraduate or graduate training and instruction to 18 students, given technical assistance on 148 wildlife conservation problems in Ohio, arranged five extensive wildlife management exhibits, participated in youth education, 4-H Club and camp work, and distributed more than 210,000 pages of reports on Ohio conservation research.

*Southern Ohio Wildlife Sanctuary and Demonstration Project*—The wildlife sanctuary and research project sponsored and encouraged by the Ohio Academy of Science in Southern Ohio now enters its fifth year. During the first four years, fourteen sanctuaries and refuges were established on the Roosevelt Game Preserve, and the Shawnee, Scioto Trail, and Pike County State Forests. Major research studies involving wildlife land-use; forestry-wildlife relationships; wildlife harvest methods; life history, ecology, and management of the White-tailed Deer, Ruffed Grouse, and Gray Squirrel; and surveys of the wildlife food, cover, and water resources were brought to a close in September, 1938, when the investigator, Floyd B. Chapman, was awarded a Doctor's degree in Wildlife Conservation at the Ohio State University. The subject of the dissertation was "The Development and Utilization of the Wildlife Resources of Unglaciaded Ohio." Bound copies of this 800 page report are on file in the Ohio State University Library, the Ohio Division of Conservation, the U. S. Biological Survey, and the Ohio Wildlife Research Unit. Two sections of the dissertation have been published by the American Wildlife Institute, namely: "Summary of the Ohio Gray Squirrel Investigation" and "The White-tailed Deer and its Management in Southeastern Ohio."

In 1939 it is planned to enlarge the sanctuary program to include other State Forest areas and the Wayne National Forest. At present three sanctuaries are being placed in the Ross-Hocking State Forest, and it is planned to establish three areas in the Zaleski State Forest, Vinton County, in the near future. One or more refuges will be set aside in the Vesuvius section of the Wayne Forest in Lawrence County, and in Muskingum County, three refuges are being established in the Muskingum Resettlement project. Dr. Chapman has been placed in charge of all wildlife management work on public lands in Southern Ohio, with headquarters at Chillicothe. The major objective during the next few years will be to put into effect the wildlife management and other recommendations incorporated in the preliminary research report.

## RECOMMENDATIONS

(1) Inasmuch as the Geological Survey of Ohio is of fundamental importance respecting our knowledge not only of the mineral resources of Ohio, but also of our biological resources, that adequate appropriation of funds be allowed for the continuance of the work.

(2) Your committee recognizes the fundamental importance of the soil survey in the program of land-use planning and soil conservation and urges that adequate funds be provided for the completion of these surveys.

(3) Your committee recommends that the Division of Conservation and Natural Resources and the State Department of Education co-operate in a program for the teaching of the principles of Conservation in the public schools of the state.

(4) Your Committee recommends that the Academy request the Legislature now in session to adopt such legislation as will effectively create a co-ordinating board made up of directors of the various State departments interested in conservation, forestry and recreational activities for the State: Such board also to make a complete survey of the natural resources of the State for the purpose of formulating a policy and program for administering the use of our natural resources.

(5) Recognizing the benefits to our streams from the sealing of abandoned coal mines in the reduced amount of acid draining into them, your committee urges that an adequate annual appropriation be made for the maintenance of openings already closed and the sealing of recently abandoned mines.

(6) Your committee recommends an investigation as to the relation between the importation of western rabbits and the apparent increase of tularemia and Rocky Mountain spotted fever in Ohio.

(7) Your committee urges the acquisition by the state for purposes of conservation and recreation of natural areas threatened with destruction, and specifically recommends the following: (1) A series of state parks on Lake Erie, (2) The Oak Openings west of Toledo, (3) Fern Lake in Geauga County, (4) Additional areas at Fort Hill, Highland County, (5) The Beaver Creek region in Columbiana County, (6) Rock Run in Jackson County, and (7) Cedar Swamp in Champaign County.

(8) Convinced of the soundness of the recommendations of this committee in former years, your committee reaffirms and urges the adoption of the same.

Respectfully submitted,

EMERY R. HAYHURST,	EDWARD S. THOMAS, <i>Chairman</i> ,
EDMUND SECREST,	W. E. STOUT,
L. E. HICKS,	G. W. CONREY,
F. H. KRECKER,	E. L. WICKLIFF,
	ROBERT B. GORDON.

*Report of Committee on Election of Fellows*

CINCINNATI, OHIO, April 14, 1939.

*To the Ohio Academy of Science:*

The Committee on the Election of Fellows met last evening at Hotel Gibson, Cincinnati, Ohio, with all members present except two, the President of the Academy presiding. All nominations to fellowship then on file were carefully considered by the committee and the following members received the required three-fourths vote of the committee and were therefore declared elected to Fellowship in the Ohio Academy of Science, viz.:

DR. AMOS C. ANDERSON.....	Ohio University
DR. ROLLO CLYDE BAKER.....	Ohio State University
DR. CECIL ERNEST BOORD.....	Ohio State University
DR. LOUIS BRAND.....	University of Cincinnati
DR. JOHN BERNIS BROWN.....	Ohio State University
DR. GEORGE M. CURTIS.....	Ohio State University
DR. CHARLES AUSTIN DOAN.....	Ohio State University
DR. BRUCE C. FREEMAN.....	Ohio State University
DR. NOEL PAUL HUDSON.....	Ohio State University
DR. HAROLD JOHN KERSTEN.....	University of Cincinnati
DR. PAUL CLIFFORD KITCHIN.....	Ohio State University
DR. CARL A. LAMEY.....	Ohio State University
DR. LAWRENCE L. QUILL.....	Ohio State University
DR. FRANCIS E. RAY.....	University of Cincinnati
DR. JOHN LYON RICH.....	University of Cincinnati
DR. PAUL BIGELOW SEARS.....	Oberlin College
DR. LEON E. SMITH.....	Denison University
DR. JOHN AUGUSTUS TOOMEY.....	Western Reserve University

Respectfully submitted,

WILLIAM H. ALEXANDER,  
*Secretary.*

*Report of Committee on Necrology*

CINCINNATI, OHIO, April 15, 1939.

*To the Ohio Academy of Science:*

Notice of the death of but two members of the Academy during the year has come to the attention of your committee, both very distinguished in their chosen fields and highly honored not only among the members of this Academy but by scientists generally, namely, Dr. John H. Schaffner and Dr. Samuel Prentiss Baldwin. A brief outline of the life and work of each follows:

## SAMUEL PRENTISS BALDWIN

FRANCIS H. HERRICK

Samuel Prentiss Baldwin, widely known for his pioneer work in trapping and banding wild birds and for his Research Bird Laboratory, was born at Cleveland, Ohio, on October 26, 1868, and died of coronary

thrombosis in that city on December 31, 1938. He was the son of Charles Candee and Sophia (Prentiss) Baldwin.

His father, a judge of the circuit court of appeals, was one of the founders and principal supporters of the Western Reserve Historical Society and was deeply interested in archaeology and geology. The son was a trustee of the Historical Society from 1907 until the end of his life.

Graduating from Dartmouth College in 1892, and from the Law School of Western Reserve University in 1894, Prentiss Baldwin withdrew from the practice of law in Cleveland in 1900, and for a number of years was engaged in business. After some field work in geology, he returned to his first love, natural history, and devoted himself more or less completely to ornithology.

In 1914 Mr. Baldwin became interested in the newly devised method of banding wild birds—encircling one of their legs with a numbered, aluminum ring or band—so that, if later recovered and reported, incontrovertible data upon their wanderings and longevity could be secured. In the course of these practices, which were systematically conducted in summer at "Hillcrest Farm," the Gates Mills property of Mr. and Mrs. Baldwin, in Ohio, and at Thomasville, Ga., in winter, he devised traps for securing large numbers of living birds, and originated the method of trapping-and-banding adult birds, which by 1920 had become so successful that it was approved by the Biological Survey. This governmental agency, which took over the work of the American Bird-Banding Society in 1920, soon became the "clearing house" for the registration of the recovered and reported aluminum bands that began to flow in from all parts of the country. As a result of this movement four Bird-Banding Associations, the Inland, Eastern, Northeastern and Western, were established. It is estimated that Dr. Baldwin, who became the honorary president of all of these organizations, and his assistants alone have banded between 50,000 and 60,000 individuals.

Since 1914 Prentiss Baldwin was devoted to the intensive study of ornithology at what became known as "The Baldwin Bird Research Laboratory" at the "Hillcrest Farm," from which have issued upwards of thirty more or less elaborate papers or treatises, relating to the physiology, development and life-history of birds, based upon his own work and that of his associates.

Dr. Baldwin soon fixed upon the little house wren as the one species that was best suited for the study of many avian problems, touching distribution, migration, anatomy, physiology, development and behavior. In short this wren, through studies at the Baldwin Laboratory, became in some measure for ornithology what the diminutive fruit-fly, *Drosophila*, is for the science of heredity or genetics. The wren, like *Drosophila*, is easily handled and controlled; it nests readily in artificial boxes, wherever placed, and can be trapped in its nest-box and quickly caught in a hand-net for examination. If it does not submit complacently to interference, it seldom or never deserts its young.

Through the testimony of the numbered bands it was shown that house wrens do not mate for life, but that on the contrary they often

change mates between seasons, and even between broods of the same year. It was also proved that not more than one-third of all marked individuals return to their nests, or to the locality in which their young were hatched, in two successive years.

Many ingenious electrical recording devices, originating in the Baldwin Laboratory, were used in determining the bodily temperature changes, which the growing young undergo from an early egg-stage to adolescence, and in recording visits of the parent birds to their nest when tending their young. Experimenters in this laboratory also perfected an instrument for taking motion pictures of the developing living embryo *in ovo*.

Dr. Baldwin was a trustee of the Cleveland Museum of Natural History for nearly sixteen years, or from 1923 until his death, and in many ways gave it his generous support. He received the degree of D.Sc. from Dartmouth College in 1932, was a fellow in the American Association for the Advancement of Science, the Geological Society of America, the American Ornithologists' Union and the Ohio Academy of Science, and a member of the American Society of Naturalists, the American Society of Zoologists, the British Ornithologists' Union, Deutsche Ornithologische Gesellschaft and the Australasian Ornithological Union.

Through his efforts and those of his assistants, Dr. Baldwin had gathered a remarkably rich store of scientific data upon birdlife, represented chiefly by the house wren, which, if properly edited should make an outstanding monograph. It is to be hoped that this work, for which he had labored so industriously, but which unfortunately he did not live to complete himself, may yet be given to the world.

Dr. Baldwin was married on February 15, 1898, to Miss Lilian Converse, daughter of Leonard Hanna, of Cleveland.

In his personal relations Prentiss Baldwin will be remembered as a loyal friend, who was ever ready to extend a helping hand, especially to young men who were devoted to science. He took a broad view of his opportunities, and freely gave his time, his effort and his means for the protection and preservation of the wild life of the countryside. The many friends of Dr. and Mrs. Baldwin, and particularly the members of Western Reserve University, of which he was a research associate in biology, can never forget the generous hospitality which they have enjoyed in their beautiful home.

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#### PROFESSOR SCHAFFNER

ADOLPH WALLER

With the passing of Professor Schaffner, there is defined for botanical sciences another landmark of a period now gone. We are tempted to think of these devoted members as giants because of the work accomplished extending into many fields. No young man today in an era of restricted research would possess the temerity to grasp, or the courage to look forward to solving new problems in so many divergent lines as seemed familiar to the older generation. The answer, of course, is that each individual was his own research center. In the forty or

fifty year span that marks the active period of these men from a single individual has sprung a whole department of workers, from a single pioneer paper has emerged an entire field of scientific work not previously perceived. It has been this proliferating process that extends the fields covered by one worker. For as he built solidly, each operation became a base for others. While Professor Schaffner is not alone in living through this period of expansion, there are few who have led the procession to the various inauguration scenes more determinedly. Here was a man whose observations of minutiae were guided into formulating original and basic principles. His faith in his own endeavors never flagged. His critical judgment directed him to separate false and true leads unhesitatingly. There are several marked instances of this. In the period when cytology occupied Professor Schaffner's early activities the work on the chromosome and its significance was in its infancy. His contributions in this field along with other botanists and zoologists have laid the firm foundation for the chromosome theory and its relation to Mendelism.

The controversy on the inheritance of sex was treated in a most unbiased manner. At the beginning of Mendelian expansion no one thought of sex inheritance. Then came the X Y type of inheritance in *Drosophila*. The suggestions offered do not fit the plant kingdom for most types. Nor is the suggestion of hermaphroditism at all the same as the situation in a heterosporous sporophyte. Schaffner began carefully defining primary and secondary sexual states. He followed this with a straightforward explanation of the difference between factors and their expression. Then began a patient exploration of the nature of sex and the time of its determination in the plant types. A series of experiments and deeply philosophical questionings led to a long series of papers over a period from 1910 to 1937. These may be grouped into three fields: (1) the nature and determination of sex, (2) sex control and sex reversal, (3) rejuvenation. A total of thirty-eight papers in these three fields appeared during the twenty-seven years. Moreover, they opened the way for other workers to see sexuality in a vastly different light and saved many workers the mistake of reasoning by analogy to a false conclusion. As is the only method for extending sure knowledge, an idea represented not a finished accomplishment, but a tool for testing facts and redistributing them.

Teaching beginning students was never the right medium for the effective use of Professor Schaffner's talents. He was likely to be so intent on the problems of the plant as to convey the impression of a wholly disinterested and impersonal attitude toward the class. All topics were of interest to him. Beginning students were unable to grasp the magnitude of the problems spread out before them or to appreciate the amazing accuracy of a difficult vocabulary. It was just the reverse with the advanced students. Each word fitted into its proper meaning with the beautiful logic and precision of the cut facets of a gem. I remember from my own student days that each lecture was a startling revelation of a process that was new to me. It was a process of seeing a person think—not a formalized lecture. Even though his lectures were difficult for beginners, his methods of teaching

were advanced for his day. The diagrams of life cycles have been copied over again and again in many textbooks. His keys to woody plants have never been surpassed in simplicity and directness. In the same fashion, his approach to the understanding of the plant kingdom through a structural taxonomy will be in use for a long time. It was with the keenest delight that he found the confirmation for his classification principles coming from the vastly different approach made by Mez and his co-workers. And I shall never forget having seen the joy with which Mez greeted Schaffner at one of the international botanical congresses, where, after years of correspondence, they met for the first time.

It was the peculiar fate of Professor Schaffner to be highly regarded by the elect among his colleagues, both at home and abroad, but to be unknown to the majority of students on the campus. I doubt if one out of a hundred undergraduates either knew or saw him or was aware of his importance in the study of plants. He was most approachable and genial when sought, but was rarely known to seek diversion or entertainment among his colleagues. Instead, they came to him with questions and always found him ready. He had worked out the answers alone.

Somewhere Mark Hopkins is credited with the thought that the measure of happiness in life is a delicate balance between what one is and what one has. From Professor Schaffner's beginnings as a farm boy on the Kansas prairie with a hard-won battle for education, in which the classics were strongly featured and the religious influence profound, to a great leader in expanding modern botanical science seems a great step. It could not have been achieved by any means but the increasing employment of his talents. And in his long productive career the delicacy of the balance between what one is and what one has was never disturbed. He worked tirelessly because it was in his work he found his greatest happiness.

Our graduate students who enjoyed the opportunity of studying with Professor Schaffner are in agreement that his patient, everlastingly patient, attempt to give to them the insights he possessed into the structures and development of plants is for them a constant inspiration. A single specimen, often hastily glanced at, perhaps discarded, became under his guiding suggestion a new pathway to understanding. Africa has one, China several, India one, and several active centers in the United States have young men who have profited from gifts of wisdom he imparted. Those of us who saw him day after day, constantly at work, but always ready to stop for questions, can never forget his example.

John Henry Schaffner was born in Agosta, Marion County, Ohio. He was educated at Baker University, Kansas; the University of Michigan, the University of Chicago, and the University of Zurich, Switzerland. In 1897, when he came to Ohio State as Assistant in Botany, with the late Dr. Kellerman as Professor, there were fewer students in the whole of Ohio State University, 1,200 or less, than there are now in the Department of Botany each year. Professor Schaffner's work

on chromosome behavior between 1894 and 1898 pioneered in the field that has now developed so richly in the application of Mendelism. His papers on the prairies reflect knowledge acquired during his boyhood familiarity with plants now long gone in regions where they were native. His papers on *Equisetum* cover a whole range of plant sciences focused on the single small group of plants he loved so well to study. His eleventh paper in a series on determinate evolution is just off the press two months after his death. With reference to man, in this paper, there is this sentence, "It has been estimated, on a conservative basis, that there are over twelve billions (12,000,000,000) of cells in the human brain alone, and it is evident that the self-conscious personality, my ego, controls this amazing mechanism and other billions of cells of the body to a definite purpose while this sentence is being written." It is a remarkable sentence in that it contains one of the few personal references in his entire writings. Yet even this slight reference to himself turns out, as the context of the paragraph reveals, to be a means of stating a concept of chromosome activity. He seldom thought of himself. His vacations, always with his family, were visits to Kansas, but for the sake of his children and Mrs. Schaffner as well as for the purpose of collecting specimens they often reached Kansas by way of Maine or the Pacific Coast.

Ohio was not neglected in the matter of plant records. The catalog of Ohio plants is as complete and the herbarium records as numerous as in any state record. Half of these have been added during the last two decades. Perhaps it was the devotion to the herbarium which brought on the heart attack, as it was evident to all of us that the climb of three flights of stairs was a severe strain. When space, more cramped of course than the herbarium, was offered in the basement with the assistants volunteering to do the errand running for changes of specimens to be studied, the answer was only a gentle No, that he preferred to be where all the stored specimens were at hand. The irony of this is that in the original plans for the building in 1914 an elevator to the herbarium was included. For lack of funds at the time this was not installed in the building.

Early in his association at Ohio State University he with the group that numbers Professors Landacre, Herbert Osborn, Raymond Osburn, James Hine, John Bownocker, and others, founded the Biology Club. This grew into the Ohio Academy of Science. Professor Schaffner was the Editor for its entire existence of the Ohio Naturalist, the predecessor of the Ohio Journal of Science. He was also editor of the Ohio Journal of Science from 1916 to 1918, its critical first two years. His services to the Academy in this respect are unique. He was its president in 1919.

We have lost a wise counsellor and a devoted friend. We cannot think of the man without his works, or the deeds without the personality that produced them. A full bibliography of his 330 papers and books will appear in another place. The Torrey Index lacks about a hundred titles of the full citation of his work. As editor, as teacher, as an example of a tireless investigator he leaves us a rich gift in his memory.



*Report of the Nominating Committee*

<i>For President.....</i>	WILLIAM LLOYD EVANS
<i>For Vice-Presidents:</i>	
A. Zoology.....	JOHN W. PRICE
B. Botany.....	MISS LOIS LAMPE
C. Geology.....	OTTO C. VON SCHLICTEN
D. Medical Sciences.....	DR. GEORGE M. CURTIS
E. Psychology.....	FLOYD C. DOCKERAY
F. Physics and Astronomy.....	RAY LAMBERT
G. Geography.....	GEORGE D. HUBBARD
H. Chemistry.....	PAUL ROTHMOND
I. Mathematics.....	LEWIS BRAND
<i>For Secretary.....</i>	WILLIAM H. ALEXANDER
<i>For Treasurer.....</i>	EUGENE VAN CLEEF
<i>For Elective Members to the Executive Committee....</i>	{ CLAUDE E. O'NEAL J. PAUL VISSCHER
<i>For Board of Trustees, Research Fund.....</i>	CHARLES G. SHATZER
<i>For Joint Administrative Board, Ohio Journal of Science, A. W. LINDSEY</i>	
<i>For Committee on Conservation.....</i>	{ A. E. WALLER, Chairman EMERY R. HAYHURST L. E. HICKS PAUL B. SEARS WALTER A. TUCKER
<i>For Library Committee.....</i>	DR. E. LUCY BRAUN
<i>For Representative on Save Outdoor Ohio.....</i>	ROSCOE W. FRANKS

Respectfully submitted,

(Signed) HAROLD E. BURTT,

(Signed) W. P. SPENCER,

(Signed) R. A. DOBBINS,

(Others by proxy and correspondence.—HAROLD E. BURTT.)

*Report of the Committee on Resolutions*

CINCINNATI, OHIO, April 14, 1939.

*Mr. Chairman, Fellow Members of the Ohio Academy of Science,  
and Friends:*

The Committee on Resolutions offers with great sincerity the following:

The Ohio Academy of Science is deeply appreciative of the complete hospitality offered by the University of Cincinnati. Everything has been done for our convenience and comfort. Not only has the University been placed at our disposal, but the city. Members of the Academy appreciate the welcome given them by Taft and Natural History Museums. For these evidences of friendship and hospitality the Academy is most grateful.

Secondly, the task of arrangements is a great and thankless one. We can not reduce the magnitude of the task, but we shall endeavor to

make it less thankless. Be it resolved, then, that Prof. J. Hobart Hoskins and the several members of the arrangements committee be hugely thanked for their effective labors.

A third resolution is hereby offered. Lectures given before the Academy as a whole are most exacting. The variety of interest of the audience demands unusual skill on the part of the lecturer. The Ohio Academy of Science congratulates Dr. Paris B. Stockdale upon his excellent presentation of the Geology of Hawaii, and the Academy finds itself equally indebted to Prof. Edwin L. Moseley for the lecture upon the important question of flood prediction, and Mr. Karl Maslowski for his charming "Naturalist's Diary."

The Fourth Resolution: No one has done more for the popularizing of economic ecological aspects of Botany than Dr. Paul B. Sears. Twice he speaks to the Academy during this session. Twice we are honored.

Respectfully submitted,

ARTHUR T. EVANS, *Chairman*,  
CLYDE S. ADAMS,  
RODERICK PEATTIE.

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